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INTERNATIONAL BULLETIN
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DISCOVERIES AND CURRENT EVENTS *

FRANCE.

Observations on the Colorado Beetle (*Leptinotarsa decemlineata*) Made in the Bordeaux Region in 1941 †

In 1940, the Colorado beetle invasion was serious and control operations much less vigorous throughout French territory. Also the numerous adult insects which had burrowed into the ground in the autumn constituted in advance a serious menace to the potato crops of 1941. The crop of that year would have been considerably affected if the weather conditions had favoured a mass appearance and the multiplication of the insects. Conditions fortunately were contrary and control operations were carried out so actively that the season ended with little loss.

The observations which I made personally in the Bordeaux region may be summed up as follows:—

The beginning of the vegetative season was characterized by a constant coolness and in particular by a cold and wet period of a month, from May 15 to June 15. The temperature rose and the weather was warm during the rest of spring and the first three weeks of summer, from June 16 to July 11; then there was a second cold and wet period much longer than the first, lasting 50 days, from July 12 to the end of August, after which the weather was fine throughout the month of September.

The hibernating Colorado beetles came out early; in the environs of Bordeaux they were easily found from the middle of April on the foliage of practically all fields, but their number subsequently did not increase, it even appeared to decrease during the first fortnight of May; scattered, showing little activity, the insects did not pair much and there was little egg-laying; most of the eggs did not hatch owing to the adverse weather.

The appearance of the spring larvae only began after June 15, three weeks later than the normal period; it occurred at the same time on all the crops of the region, but only to a small extent, with the exception of some unfavourable points.

* Under this and the third heading the countries are arranged in French alphabetical order.

† Communication from Dr. JEAN FEYTAUD, Director of the Laboratory of Applied Entomology, Talence, Gironde, France.

The great heat at the end of June and at the beginning of July accelerated nymphosis, and the summer imagos came up from the soil throughout the month of July, especially after the 20th.

The second generation developed during the month of August and, in the first fortnight of September, formed a larger number of adult insects; swarming was observed towards the 15th.

Thus the Bordeaux region which for some 22 years had been the centre of the Colorado beetle invasion, did not suffer much damage during the year 1941. With the exception of a few rare, more or less virulent foci, imagos and larvae were so few that repetition of insecticidal treatments was not even necessary to save the crop.

Moreover, the damage was more or less mild throughout the South West of France, though it was severe in certain parts of the North, the East and Central France. Throughout the country, the damage caused by potato blight (*Phytophthora infestans*), favoured by the rainy summer and given less treatment owing to the shortage of copper mixtures, was relatively more serious than that by the Colorado beetle.

VARIOUS QUESTIONS

Two Processes for Preserving Small Animals, Herbarium Material, Phytopathological Specimens, etc. *

I. Preservation by means of inclusion in transparent resin.

It is well known that it is not unusual to find enclosed in certain fossil resins and especially in yellow amber, diminutive insects so perfectly preserved after thousands of years that their examination and frequently also determination are still possible.

Desiring to reproduce, for scientific purposes, the method of conservation suggested by nature, it was necessary to choose a colourless and transparent material enabling the full vision on the enclosed object and a support also transparent and at the same time rigid, in such a way as to form a good solid and easily handled whole.

As regards the support, we turned to glass and, after repeated tests, we have found that the resin which is the most suitable for the purpose is dammar, already employed in microscopy, dissolved in oil of turpentine and more precisely the same solution as that utilized to protect oil-paintings.

If it is a case of an animal specimen, it is placed on a glass slab in an attitude resembling as closely as possible the habitual position or that which is

* Note from Mr. Filippo Ranzi, Rome, Italy.

the most suitable for observation; it is attached by covering it with successive layers of dammar resin and finally set aside away from dust and heat and exactly flat. The resin, which dries very slowly, itself forms a horizontal layer, with a perfectly smooth surface. When completely dried, it will form a very transparent, colourless, impermeable and resistant layer, and thus constitute an excellent protection against external agents, forming a very compact whole and easy to handle without risk of damage.

If it is a case of a plant specimen (leaf, flower, etc.) first of all it must be well flattened out and then placed on the glass after having coated the surface with resin, taking care that no air bubbles are formed. After this, successive layers of resin are applied as described above. This is particularly useful for the preservation of very small specimens, delicate and easily lost, such as pollen, spores, insect eggs, etc. After four years preservation, pollen grains encloseed in resin still appeared perfectly intact on microscopical examination.

Dammar having a refractive index differing but slightly from that of glass, the preparations may be examined with the microscope, the resin functioning as a cover-glass.

Owing to the action of the resin, the specimens very frequently become almost completely diaphanous, so that their internal structure is visible; advantage can be taken of this property to employ the preparations themselves directly as dispositives for projection, either for didactic uses, or for direct study or to obtain photographs for illustrating scientific publications, etc.

The above figure reproduces the photograph, obtained by projection, of a portion of an elm leaf with a sinuous mine made by *Nepticula centifoliella*. It is interesting to note how clearly the caterpillar living in the parenchyma of the leaf stands out, although it is not easily visible under normal conditions.

The process just described may also find a special use in the preservation of phytopathological material and also serve for constituting didactic pictures of large dimension. In this case, the resin, in a weaker solution, will be applied with the aerograph; it will also be possible, with this system, to preserve objects in some particular attitude (*e. g.*, small insects pairing), which cannot be done with the methods at present in use.

Despite the many cases where this process would be useful, the glass with its weight, volume and cost, evidently prevents it being applied to whole herbariums or to large collections or special importance, such as phytopathological collections, but, on the other hand, recourse can be had to a second process which will now be discussed.

II. Conservation by inclosure in cellophane.

Normally, the plants to be included in herbariums or in special collections are, after drying, fixed by different systems onto sheets of paper and thus conserved in packets or portefolios. As is known, this system exposes the plants to different types of damage caused by external agents (dust, humidity, corrosive gases, moulds, mites and various insects which provoke so much damage in phytological collections). Added to this is the progressive desiccation of the plant which rapidly makes it very fragile even on sole contact by those who observe it. The impossibility of conserving in their entirety the parts of plants composed of diminutive elements, very fragile and easily detachable (for example, plumose or capillary pappus); the impossibility of examining both sides of the specimens fixed on paper without detaching them from the support with subsequent danger of breaking them and loss of time.

It is also known what care and expense are required to protect these collections from destructive agents and how search is made for new systems (disinfectants, sterilizing ovens, etc.) which, however, are costly and which, in the long run, end by destroying the objects they should protect.

The process which we now describe eliminates these disadvantages with little cost and labour.

The plant to be preserved is first placed under a press (letter-book or anything similar) to flatten it as much as possible, by means of moderate pressure; it is left to desiccate for some days, taking care only to let it lose the excess moisture it would contain: it is not advisable to let it dry completely, but it is expedient, on the contrary, to work so that it still keeps all its colour and its flexibility. When flattened out, the specimen is placed on a thin sheet of cellophane, the edges are moistened with a special adhesive and the whole covered with another sheet of cellophane of the same size; in general, one sheet folded in two is used. After which and before the adhesive has time to dry (this, it should be noted, is the most important part of the process), the whole is again placed under the press. Under the action of the latter, the air contained between the two sheets is expulsed, the adhesive still being moist enables it to escape through the edges; when, always under pressure, it is completely dry, the air will no longer be able to enter nor, with it, the agents harmful to the preservation of

the specimen. Consequently, any subsequent continual and expensive use of disinfectants or annual sterilization is made unnecessary.

If a greater adherence between the plant and the cellophane sheet is desired, especially if there are main veins and other projecting parts (like galls, etc.), the plant can be coated with a weak solution of rubber in benzine which does not alter the colour and will not subsequently prevent it being removed from its envelope if necessary.

The inclosure in cellophane may be employed even in the case of extensive collections, owing to the facility with which it can be applied, the low cost of the material used and the rapidity with which the necessary operations are carried out.

The exclusion of air between the two sheets of cellophane enable the plant of part of plant to be preserved from atmospheric and pathogenic agents, avoiding continual expense and attention, as well as anxiety in regard to the conservation of rare and not easily replaceable examples.

The specimens are also protected from contact of the hands of the observer and visible on both sides.

Each preparation is very light and can be kept either directly in a portefolio or else attached to a sheet of paper by clips so that it can be raised in order to see the under side.

The plant or part of plant, placed in its envelope of cellophane when it is not yet completely dried, conserves its flexibility and colour for a long time.

The system lends itself well to the preservation of plants or parts of plants attacked by cryptogamic diseases, the pathogenic process not undergoing any modification through the action of external causes; plants or parts of plants attacked by animal agents of little thickness and soft consistency (mites, small larvae, small butterflies, etc.). It is necessary, evidently, in this case, to take precautions in order that these small organisms may not be crushed or deformed through the action of the press; this is managed by interposing a piece of cardboard of adequate thickness and cut out at the point where the object to be included is found.

This method also makes it possible to place in the cellophane envelope, at the same time as the plant or part of plant, the relative label thus avoiding all risk of error or confusion, as well as small quantities of substances (naphthalene, camphor, etc.) suitable for preserving the specimen without having to make periodical renewals.

The specimen thus preserved can easily be extracted from the envelope when it is desired to examine it exposed and, owing to the simplicity of the process, can be replaced on completion of examination.

We may add that this same process can be applied to the conservation of that part of library collections composed of objects forming one leaf only (manuscripts, letters, maps, prints, drawings, parchments, papyrus, etc.); finally, it can also be adopted for coins of numismatic collections so as to preserve them from the action of the moisture or corrosive gases present in the atmosphere.

Application for patents has been made in the case of the two processes just described.

LEGISLATIVE AND ADMINISTRATIVE MEASURES

Germany. — By Ordinance of February 5, 1942 have again been modified the regulations relative to the size of seed potatoes, established by the Ordinance of January 10, 1939 and modified by Ordinance dated November 1, 1940 [see this *Bulletin*, 1939, No. 5, pp. 110-111 and 1941, No. 2, p. 23]. The minimum dimension is fixed at a diameter of 3 cm. for both round and oblong tubers. (*Amtliche Planzenschutzbestimmungen*, Berlin, 1. April 1942, Bd. XIV, Nr. 2, S. 59-60).

*** A Decree dated February 26, 1942 amending that of April 2, 1941 relative to the use of poisonous preparations for the control of parasites [see this *Bulletin*, 1941, No. 10, p. 186] prohibits, insofar as regards the treatment of vines, all use of arsenical preparations. (*Ibid.*, S. 58).

*** By Ministerial Provision of March 16, 1942, for the purpose of preventing the introduction of the carnation leaf curler [*Tortrix pronubana*], the importation of carnations (cut flowers) from Italy, Denmark and the Netherlands is authorized up to April 30, 1942. (*Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin, Anfang April 1942, 22. Jahrg., Nr. 4, S. 28).

Germany (Protectorate of Bohemia and Moravia). — Ministerial Notification No. 254 of February 25, 1942 modifies Notification No. 233 dated January 6, 1942 [see this *Bulletin*, 1942, No. 4, p. 56] regarding the sale of preparations for the control of plant pests.

The firms commissioned with the distribution of the preparations in question are indicated. (*Amtliche Planzenschutzbestimmungen*, Berlin, 1. April 1942, Bd. XIV, Nr. 2, S. 63).

Germany (Lorraine). — A Decree dated January 30, 1942 obliges those concerned to control mistletoe [*Viscum album*] on the trees grown along roadsides and on other ornamental trees.

The branches bearing mistletoe should be cut below the point of insertion of the parasite. They should subsequently be destroyed by fire. If more than two thirds of the tree is infested by this parasite, it is advisable to remove the entire tree. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. April 1942, Bd. XIV, Nr. 2, S. 62).

*** Another Decree of the same date relative to the control of crows, authorizes the use, during the months of March and April of the year 1942, of poison bait. (*Ibid.*, S. 63).

Germany (Prussia). — A Circular dated March 10, 1942 modifies the Circular of May 23, 1940 containing the list of grape varieties intended for use as stocks authorized for cultivation [see this *Bulletin*, 1940, No. 11, p. 214]. (*Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin, Anfang April 1942, 22. Jahrg., Nr. 4, S. 27).

Germany (Saxony). — An Ordinance of March 17, 1942 obliges the owners of sprayers to report their stocks before March 31, 1942 and to hold them at the disposal of the competent authorities who will be able, should the occasion arise, to utilize them for the community in common. (*Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin, Anfang, April 1942, 22. Jahrg., Nr. 4, S. 27-28.

Germany (Styria). — A Decree of January 22, 1942 relative to the control of the San José scale [*Aspidiotus perniciosus*] prohibits all introduction of horticultural nursery products from newly incorporated territories which before the war formed part of Yugoslavia. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. April 1942, Bd. XIV, Nr. 2, S. 60-61).

Germany (Thuringia). — By Decree of February 27, 1942, clearing of thistles is made compulsory in the circumscription of Gotha. The provisions correspond to those adopted by Decree of October 30, 1941 [see this *Bulletin*, 1942, No. 2, p. 23] in the district of Stade. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. April 1942, Bd. XIV, Nr. 2, S. 61-62).

United States of America. — The notice of quarantine and regulations on account of the Dutch elm disease (*Ceratostomella ulmi*) have been revised on September 20, 1941 and are effective on October 1, 1941.

This revision extends the regulated area to include parts of nine Pennsylvania counties and additional sections in Connecticut, New Jersey, and New York where the disease has been located, including parts of the London County, Conn., Burlington and Ocean Counties, N. J., and the New York counties of Albany, Broome, Chenango, Delaware, Greene, Otsego, and Sullivan. The town of Huntington, Suffolk County, N. Y., has been removed from the regulated area.

The regulations prohibit the interstate movement from the regulated areas of all parts of elms of all species, except that elm lumber or products manufactured from or containing elm wood, if entirely free from bark, are exempt from restriction.

No restrictions are placed on the interstate movement wholly within the regulated area.

Shipments originating outside the regulated area may be moved through the regulated area only on through billing. Restricted articles trucked through the regulated area in summer must be covered or otherwise protected. (*Federal Register*, Washington, September 23, 1941, Vol. 6, No. 185, pp. 4834-4836).

*** On September 23, 1941 have been promulgated new rules and regulations for the enforcement of the Insecticide Act of 1910, to become effective on October 1, 1941. (*Ibid.*, September 25, 1941, No. 187, pp. 4878-4880).

*** The 6th revision dated October 2, 1941 of the gypsy moth [*Lymantria dispar*] and brown-tail moth [*Nygmia phaeorrhoea*] quarantine regulations adds to the list of articles exempted from certification requirements, box shooks,

when newly manufactured; cuttings and branches (for ornamental use) of boxwood (*Buxus sempervirens*), of California peppertree (*Schinus molle*), and of eucalyptus (*Eucalyptus globulus*); cuttings and greenhouse-grown woody plants when so labeled; and wood flour, pulverized wood, or ground wood sawdust when sifted through a screen of at least 30 meshes to the inch. (*Ibid.*, October 9, 1941, No. 197, p. 5131).

Italy. — Ministerial Circular No. 222 of February 12, 1942 advises the competent organizations to exert the strictest control in regard to the trade in anticryptogamic products, the efficacy of which is not yet recognized. (*Bollettino Ufficiale del Ministero dell'Agricoltura e delle Foreste*, Roma, 11 marzo 1942, anno XIV, n. 8, pp. 358-359).

*** Ministerial Circular No. 223 of the same date requests the competent organizations to test and try out, methodically and thoroughly, the parasiticide 'Asporital D'Amico'. (*Ibid.*, pp. 359-360).

*** A Ministerial Decree dated April 9, 1942 authorizes the hunting and capture of the wild rabbit, declared an animal pest in the territory of the Province of Cagliari. (*Gazzetta del Regno d'Italia*, Roma, 16 aprile 1942, anno 83°, n. 90, p. 1487).

*** A Ministerial Decree dated April 29, 1942 authorizes the capture of the wild boar, animal declared dangerous to cereal crops in the Provinces of Cagliari, Nuoro and Sassari. (*Ibid.*, 5 maggio 1942, n. 107, p. 1824).

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NOTES

Olive Fly: Biology and Control. — The 'Reale Accademia dei Georgofili', in collaboration with the Olive-growing Branch, organized a meeting on olive-growing studies which was held at Florence on May 15, 16 and 17, 1942.

The following resolutions, *inter alia*, were adopted:—

(1) That studies should be still more exhaustive on the biology of the olive fly (*Dacus oleae*), amply taking into account the influence of the different ecological environments, also insofar as regards the methods of controlling this insect;

(2) That new control experiments should be carried out in the various ecological environments, experiments organized with the greatest care, according to the program laid down by the Ministry of Agriculture, the interpretation of the results to entrusted to a Commission composed of entomologists and olive-growers.

Prof. UGO PAPI, *Segretario generale dell'Istituto, Direttore responsabile.*

PRINTING OFFICE CARLO COLOMBO — ROME, JUNE 15, 1942.

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The Loss to Agriculture caused by Factory Fumes. Lectures given at the International Institute of Agriculture by Professor H. CRISTIANI, Geneva, and Professor Dr. J. STOKLASA, Prague. (1927, 26 pp., 3 figs., 25 pls., 8vo) . . . **15** »

Actes de la Conférence internationale pour la protection des plantes. Rome, 10-16 avril 1929. (1929, 201 pp., 8vo) **25** »

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